

Claims

- [c1] In an ultrasound machine for generating an image responsive to moving structure within a region of interest of a subject by displaying at least one color characteristic corresponding to a movement parameter of said structure, apparatus for mapping said color characteristic comprising:
- a front-end arranged to transmit ultrasound waves into said structure and to generate received signals in response to ultrasound waves backscattered from said structure in said region of interest over a time period;
 - a processor responsive to said received signals to generate a set of parameter signals representing values of said movement parameter within said structure during said time period and responsive to a distribution of said set of parameter signals and a mapping algorithm to generate a set of color characteristic signals representative of said values of said movement parameter; and
 - a display arranged to display a color representation of said moving structure in response to said set of color characteristic signals.
- [c2] The apparatus of claim 1 wherein said moving structure comprises cardiac tissue.
- [c3] The apparatus of claim 1 further comprising a user interface arranged to enable an operator to select said region of interest from said image on a monitor.
- [c4] The apparatus of claim 1, wherein said movement parameter comprises one of velocity and strain rate.
- [c5] The apparatus of claim 1, wherein said color characteristic comprises hue.
- [c6] The apparatus of claim 1, wherein said time period comprises at least a portion of a cardiac cycle.
- [c7] The apparatus of claim 1 wherein said distribution of said set of parameter signals comprises a histogram representing frequency of occurrence of said values of said movement parameter.

- [c8] The apparatus of claim 7 wherein said mapping algorithm generates a mapping function comprising a cumulative total of the occurrence of said values of said histogram.
- [c9] The apparatus of claim 8 wherein said mapping algorithm further comprises normalization of said cumulative total to a domain of a color characteristic legend.
- [c10] The apparatus of claim 8 wherein at least one of said histogram and said mapping function is weighted.
- [c11] In an ultrasound machine for generating an image responsive to moving structure within a region of interest of a subject by displaying at least one color characteristic corresponding to a movement parameter of said structure, a method of mapping said color characteristic comprising:
transmitting ultrasound waves into said structure and generating received signals in response to ultrasound waves backscattered from said structure in said region of interest over a time period;
generating a set of parameter signals representing values of said movement parameter within said structure during said time period in response to said received signals;
generating a set of color characteristic signals representative of said values of said movement parameter in response to a distribution of said set of parameter signals and a mapping algorithm; and
displaying a color representation of said moving structure in response to said set of color characteristic signals.
- [c12] The method of claim 11 wherein said moving structure comprises cardiac tissue.
- [c13] The method of claim 11 and further comprising enabling an operator to select said region of interest from said image.
- [c14] The method of claim 11 wherein said movement parameter comprises one of velocity and strain rate.

- [c15] The method of claim 11 wherein said color characteristic comprises hue.
- [c16] The method of claim 11 wherein said time period comprises at least a portion of a cardiac cycle.
- [c17] The method of claim 11 wherein said distribution of said set of parameter signals comprises a histogram representing frequency of occurrence of said values of said movement parameter.
- [c18] The method of claim 17 wherein said mapping algorithm generates a mapping function comprising a cumulative total of the occurrence of values of said histogram.
- [c19] The method of claim 18 wherein said mapping algorithm further comprises normalization of said cumulative total to a domain of a color characteristic legend.
- [c20] The method of claim 18 wherein at least one of said histogram and said mapping function is weighted.